

**REMARKS**

In the Office Action<sup>1</sup>, the Examiner objected to claims 10, 20, and 22; rejected claims 10-18, 20, and 22 under 35 U.S.C. § 112, second paragraph, as being indefinite; objected to the specification; and rejected claims 1-22 under 35 U.S.C. § 103(a) as unpatentable over U.S. Patent Application Publication No. 2002/0071593 to Muratani in view of U.S. Patent Application Publication No. 2002/0009208 to Alattar et al. ("Alattar").

By this Amendment, Applicant have amended claims 10, 13-16, 20, and 22.

Claims 1-22 are pending and under current examination.

**I. The Objection to Claims 10, 20, and 22**

The Examiner states, "[c]laims 10, 20 and 22 recite, 'an embedded-function embedded in the target content' which is redundant" (Office Action at p. 2). Amended claims 10, 20, and 22 recite "a function embedded in the target content." Accordingly, Applicant respectfully requests the Examiner to withdraw the objection.

**II. The Rejection of Claims 10-18, 20, and 22 under 35 U.S.C. § 112**

Regarding claim 10, the Examiner states that "[i]t is unclear whether the acquired topological invariant is the same or different from the computed topological invariant" (Office Action at p. 3). Amended claim 10 no longer recites "to acquire a topological invariant."

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<sup>1</sup> The Final Office Action contains a number of statements reflecting characterizations of the related art and the claims. Regardless of whether any such statement is identified herein, Applicant declines to automatically subscribe to any statement or characterization in the Final Office Action.

Further regarding claim 10, the Examiner states that “[i]t is unclear how an embedded function related to the watermark information can be detected when the watermark information is ‘to be embed[ded],’ that is, it has not been embedded yet” (Office Action at p. 3). Amended claim 10 no longer recites digital watermark information “to be embedded.”

In light of the amendments to claim 10, Applicant submits that claim 10 is in conformance with 35 U.S.C. § 112. The Examiner rejected claims 20 and 22 for the same reasons as claim 10 (Office Action at p. 3), and Applicant has amended claims 20 and 22 similarly to claim 10. Claims 11-18 were rejected solely due to their dependence from claim 10 (Office Action at p. 3). Accordingly, Applicant respectfully requests the Examiner to withdraw the rejection of claims 10-18, 20, and 22 under 35 U.S.C. § 112.

### **III. The Objection to the Specification**

The Examiner states, “[t]he disclosure is objected to because of the following informalities: The specification at page 5: line 13 - page 6, lines 3; page 6, line 17 - page 7, line 3 and page 7, line 22 - page 8, line 13 contains essentially the same language as the claims rejected under 35 U.S.C. 112, second paragraph” (Office Action at p. 3). The specification has been amended to correspond to amended claims 10, 20, and 22. Accordingly, Applicant respectfully requests the Examiner to withdraw the objection to the specification.

**IV. The Rejection of Claims 1-22 under 35 U.S.C. § 103(a)**

Applicant respectfully traverses the rejection of claims 1-22 under 35 U.S.C. § 103(a) because a *prima facie* case of obviousness has not been established.

To establish a *prima facie* case of obviousness, the prior art references (or references when combined) must teach or suggest all of the claim limitations. See M.P.E.P. § 2142, 8th Ed., Rev. 5 (August 2006). Moreover, "in formulating a rejection under 35 U.S.C. § 103(a) based upon a combination of prior art elements, it remains necessary to identify the reason why a person of ordinary skill in the art would have combined the prior art elements in the manner claimed." USPTO Memorandum from Margaret A. Focarino, Deputy Commissioner for Patent Operations, May 3, 2007, p. 2.

A *prima facie* case of obviousness has not been established because, among other things, neither *Muratani*, nor *Alattar*, taken alone or in combination, teaches or suggests each and every element of Applicant's claims.

**A. Claims 1-9, 19, and 21**

Independent claim 1, for example, recites a digital watermark embedding apparatus comprising, among other things, a "randomizing-function generation unit configured to ... compute a composite function by composition of the randomizing function and the topological function" (emphasis added). The cited references fail to teach or suggest at least the claimed composite function.

The Examiner concedes that *Muratani* fails to disclose the claimed composite function (Office Action at p. 5). The Examiner, however, incorrectly alleges that *Alattar* discloses the claimed composite function (Office Action at p. 5). *Alattar* discloses an embedder that uses spread spectrum modulation to create a watermark signal (*Alattar*,

¶ 119). The embedder uses a modulator to perform an XOR operation between a raw bit and a pseudo random binary number, and scatters these “chips” throughout an image block (Alattar, ¶¶ 119-122). The Examiner appears to rely on *Alattar*’s embedder as corresponding to the claimed randomizing function (Office Action at p. 5). However, even assuming *Alattar*’s embedder could correspond to the claimed randomizing function, *Alattar*’s embedder does not compute a composite function by composition of a topological function. Indeed, *Alattar* does not disclose or suggest a topological function or invariant. Therefore, *Alattar* fails to teach or suggest a “randomizing-function generation unit configured to ... compute a composite function by composition of the randomizing function and the topological function” (emphasis added), as recited by independent claim 1.

For at least the above reasons, *Muratani* and *Alattar*, taken alone or in combination, fail to teach or suggest each and every element of independent claim 1. Therefore, no *prima facie* case has been established with respect to claim 1.

Furthermore, although of different scope than claim 1, amended independent claims 19 and 21 are allowable for at least the same reasons as claim 1. Claims 2-9 depend from claim 1 and are allowable at least due to their dependence.

Because the cited references fail to teach or suggest each and every claim element recited by claims 1-9, 19, and 21, no *prima facie* case of obviousness has been established with respect to these claims. Applicant, therefore, respectfully requests the Examiner to withdraw the rejection of these claims under 35 U.S.C. § 103(a).

**B. Claims 10-18, 20, and 22**

Independent claim 10, for example, recites a digital watermark detection apparatus comprising, among other things, “an ordering-function generation unit configured to … compute a composite function by composition of the ordering function and the embedded function.” The cited references fail to teach or suggest at least the claimed composite function.

The Examiner concedes that *Muratani* fails to disclose the claimed composite function (Office Action at p. 8). The Examiner, however, incorrectly alleges that *Alattar* discloses the claimed composite function (Office Action at p. 8). As discussed, *Alattar*’s embedder does not compute a composite function by composition of a topological function. Indeed, *Alattar* does not disclose or suggest a topological function or invariant. In contrast, the claimed “composite function” is used “to compute a topological invariant.” Therefore, *Alattar* fails to teach or suggest “an ordering-function generation unit configured to … compute a composite function by composition of the ordering function and the embedded function” (emphasis added), as recited by independent claim 10.

For at least the above reasons, *Muratani* and *Alattar*, taken alone or in combination, fail to teach or suggest each and every element of independent claim 10. Therefore, no *prima facie* case has been established with respect to claim 10.

Furthermore, although of different scope than claim 10, amended independent claims 20 and 22 are allowable for at least the same reasons as claim 10. Claims 11-18 depend from claim 10 and are allowable at least due to their dependence.

Because the cited references fail to teach or suggest each and every claim element recited by claims 10-18, 20, 22, no *prima facie* case of obviousness has been established with respect to these claims. Applicant, therefore, respectfully requests the Examiner to withdraw the rejection of these claims under 35 U.S.C. § 103(a).

**V. Conclusion**

In view of the foregoing, Applicant respectfully requests reconsideration and reexamination of this application and the timely allowance of the pending claims.

Please grant any extensions of time required to enter this response and charge any additional required fees to our deposit account 06-0916.

Respectfully submitted,

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